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DEVELOPMENT OF COGNITIVE KNOWLEDGE TEST SCALE ON SMALL ANIMAL FARMING PRACTICES

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ABSTRACT

The knowledge test was developed to measure the knowledge of small animal farmers. In all 114 items were initially constructed on the basis of promoting thinking rather than rote memorization and differentiate the well informed small animal owners from the poorly informed ones. The scores from sample respondents were subjected to item analysis, comprising of item difficulty index & item discrimination index. In the final selection, the scale consisted of 42 items with difficulty index ranging from 30-80 and discrimination index ranging from 0.30 to 0.55. The reliability of the knowledge test developed was tested by split half and test-retest method. The coefficient of correlation values in split half & test retest methods were 0.85 & 0.76 respectively which were found to be significant at 1% level. It was found that knowledge test constructed was highly stable & dependable for measurement.

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INTRODUCTION

Small animal farming contributes significantly in national agrarian economy, considering its provision of small scale employment potentiality & easily disposable income for rural entrepreneurs. Besides, income generation, small animal farming practice provides nutritional supplementation in the form of valuable animal protein and empower rural women folk. To sustain the economic contribution and enhance optimum production level of this promising entrepreneurial sector, scientific orientation of isvery much needed. So, better adoption of this scientific farming practices depends upon the knowledge level of the small animal owners understanding, which is essential to bring improvement in the cognitive domain of their behavior. In the present context, the term 'Knowledge' was conceptualized as the understood information about recommended small animal production practices possessed by the stakeholders. Considering this background, a knowledge test was developed to assess the knowledge level of small animal owners.

MATERIALS AND METHODS

Item collection

The content of knowledge test was composed of questions called items. Items for the test were compiled from different sources, such as literature, field extension personnel, subject matter specialists in animal and dairy sciences and the researcher's own experiences. The questions were designed to test the knowledge level of small animal owners about small animal farming practices.

Initial selection of items

The selection of items was done on the basis of the following criteria: (i) It should promote thinking rather than rote-memorization, and (ii) It should differentiate the well-informed Dairy owners from the poorly informed ones and have a certain difficulty value. Based on these two criteria 114 items were initially collected for construction of the knowledge test were in objectives form and were in dichotomous or multiple choice format. A schedule was prepared with these 114 items for administering to the livestock owners for item analysis and screen out further

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Table 1. Final Scale for Knowledge test in Small Animal Farming Practice along with their Difficulty & Discrimination Index

SL.	ITEMS(STATEMENTS)	ANSWERS	Difficulty Index	Discrimin.Index
	What do you mean by Small Animal farming? 1. Goat -Sheep farming-(1)		64.44	0.30*
2.	Piggery-(1)		58.89	0.20
3.	Rabbitary-(1)		64.44	0.40*
4.	All of the above-(1)		61.11	0.33*
	What are the key features in profitable Small Animal farming?			
5.	Meat Production-(1)		63.33	0.30*
6.	Kidding & Farrowing rate-(1)		56.67	0.33*
7.	Wool production-(1)		73.33	0.47*
8.	All of the above-(1)		65.56	0.30*
9.	Which breed of goat is ideal for meat purpose rearing?	a) Bengal Goat-(1) b) Any other-(0)	62.22	0.30*
10.	Which breed of pig is ideal in rural extensive farming?	a) Ghungroo pig-(1) b) Any other-0	62.22	0.43*
11.	What is average fecundity rate of Ghungroo pig in rural farming?	a) 12-15 no's-(1) b) Any other-(0)	58.89	0.33*
12.	What is the average breeding age of small animals?	a) 8-10 Months-(1) b) Any other-(0)	67.78	0.43*
13.	What is the ideal gestation period of Goat?	a) 145±5 days-(1) b) Any other-(0)	65.56	0.40*
14.	What is the appropriate gestation period of Pig?	a) 114 ±5 days-(1) b) Any other-(0)	52.22	0.37*
15.	What is the average oestrus cycle in small animal?	a) 18-21 days-(1) b) Any other-(0)	72.22	0.33*
16.	Rabbit is mainly reared for meat purpose?	a) Yes-(1) b) No-(0)	63.33	0.30*
	What is the primary feed source for Goat? 17. Dry & Green roughage-(1)		60.00	0.33*
18.	Concentrate feed-(1)		57.78	0.33*
19.	All of the above-(1)		64.44	0.33*
20.	How much concentrate feed is given a goat in last trimester of pregnancy?	a) 150-300 gm-(1) b) Any other-(0)	90.00	0.33*
21.	Why colostrum's should be provided to new born of small animal?	a) Provide immunity-(1) b) Any other-(0)	60.00	0.30*
22.	Which type of Housing is best for small animal farming?	a) Semi-intensive-(1) b) Any other-0	57.78	0.37*
23.	What is the minimum space require for housing for adult goat?	a) 10-15 sqft-(1) b) Any other-(0)	64.44	0.30*
24.	What is he minimum space required for housing of a adult Pig?	a) 15-20 sqft.-(1) b) Any other-(0)	67.78	0.33*
25.	In which age small animal castrated for better growth rate?	a) 1.5-2 Month—(1) b) Any other-(0)	65.56	0.37*
26.	Which feed is supplied to pregnant sheep before parturition?	a) Flushing ration-1 b) Any other-0	73.33	0.33*
27.	What is the marketable age of rabbit in meat purpose?	a) 12-14 weeks-(1) b) Any other-(0)	60.00	0.30*
28.	What is the avg. kindling rate in rabbit?	a) 6-12 nos.-(1) b) Any other-(0)	63.33	0.33*
29.	How much feed is required for rabbit/Day?	a) 150-200 gm-(1) b) Any other-(0)	56.67	0.37*
30.	What is the weaning age of kids & Piglet after birth?	a) 1.5-2.0 month-1 b) Any other-(0)	48.89	0.33*
31.	Which disease is most contagious in goat farming?	a) PPR Infection-(1) b) Any other-0	76.67	0.30*
32.	When swine fever vaccine is to be done in Piggery?	a) At 2-3M age-(1) b) Any other-(0)	63.33	0.37*
33.	Which disease causes maximum mortality in piglet? A) Anaemia & Hypoglycaemia-(1) b) Any other-(0)		64.44	0.40*
34.	How can you control internal worm in small animal? a) Deworm regularly-(1) b) Any other-(0)		45.56	0.30*
	What is PPR vaccination regime in Goat Farming? 35. 1st at 2-3 month age-(1)		54.44	0.33*
36.	Booster after 21 days -(1)		70.00	0.40*
37.	Yearly interval-(1)		62.22	0.33*
38.	What should be the deworming schedule of Small Animal? 38. Monthly interval up to 6M-(1)		57.78	0.33*
39.	Quarterly interval after 6 month-(1)		66.67	0.30*
40.	Half yearly interval-(1)		62.22	0.37*
41.	What is the most infectious disease in Sheep farming?	a) Enterotoxemia-1 b) Any other-0	47.78	0.47*
42.	What is ideal marketing age of goat-sheep for meat purpose?	a) 12-15 Month-(1) b) Any other-0	71.11	0.37*

items. The procedure followed in selection of the test items was on the lines used by Jaiswal (1965), Sagar (1983), Dhargupta (2008) etc.

RESULTS AND DISCUSSION

Preliminary administration of test

Items were pretested and modified by administering to 90 randomly selected small animal owners. Score was given as '1' for right and 0 for wrong answer for each of the 114 items. The total correct answer was the knowledge score secured by a farmer. The farmers were then divided into 6 groups (G₁ to G₆) each having 15 farmers. The farmers in each group were arranged in descending order as per the scores obtained by them. Only four extreme groups with high and low scores were considered for computation of item difficulty and item discrimination indices.

Item analysis

Guilford explored that the item analysis of a test yields two kinds of information: item difficulty and item discrimination. The index of item difficulty revealed how difficult an item was whereas the index of discrimination indicated the extent to which an item discriminates to well inform individuals from the poorly informed ones.

Item difficulty index (Pi)

The difficulty index of an item was defined as the proportions of livestock owners giving correct answers to that particular item. This was calculated by the formula:

$$P_i = n_i/N_i \times 100$$

Where,

- P_i = Difficulty index in percentage of i^{th} item.
 n_i = Number of small animal owners giving correct answer to i^{th} item.
 N_i = Total number of small animal owners to whom i^{th} item was administered.

Item discrimination index

The discrimination index was obtained by calculating the Phi-Coefficient as formulated by Perry and Michael (1951). However, Mehta (1958) in using $E^{1/3}$ method to find out item discrimination emphasized that this method was analogous to, and hence, a convenient substitute for the Phi-Coefficient. The method suggested by Mehta (1958) was adopted for the present study. The formula by which the item discrimination index was calculated is given below:

$$E^{1/3} = \frac{(S_1 + S_2) - (S_5 + S_6)}{N/3}$$

Where, S_1 , S_2 , S_5 and S_6 were the frequencies of correct answers in G₁, G₂, G₅ and G₆ groups respectively, and N = Total number of livestock owners in the sample of item analysis.

Selection of items for test

Two criteria viz. item difficulty index and item discrimination index were considered for selection of items in the final format

of the knowledge test. In the present study, items with difficulty index ranging from 30 to 80 and discrimination index ranging from 0.30 to 0.55 were included in the final format of the knowledge test. Item difficulty index and item discrimination index of all the 114 items were calculated and 42 items which fulfilled both the criteria were selected for the final format of knowledge test in Table-1. The study was similar with the study of Meena *et al.* (2007) & Goswami (2012).

Scoring method: The summation of scores for correct replies over all the items of a particular respondent indicated his/her level of knowledge about the practices mentioned above. The range of scores was, therefore, from 0 to 50.

Reliability: The reliability of knowledge test developed was tested in following two ways.

Split-Half method: All the 50 items of knowledge test were first arranged randomly (simple random sampling) and then divided into two parts. In these two sets, one set having 25 items with odd numbers and other set having 25 items with even numbers were administered to 50 respondents separately. The co-efficient of Co-relation between two sets of scores was computed and the value 0.764 was found to be significant at 1% level. The reliability co-efficient, thus obtained, indicated that the "internal consistency of the knowledge test developed for the study was quite high.

Test-Retest method: The knowledge test with 50 items was administered to 30 small animal owners, twice at an interval of 15 days. The co-efficient of co-relation value was 0.854, which was found to be significant at 1% level. Hence, the knowledge test constructed was highly stable and dependable for measurement of this variable.

Content validity of knowledge Test

In the final selection of items, care was taken to include items covering the entire universe of relevant behavioral aspects of the respondents with respect to knowledge about small animal farming practices in relation meat production. Items were collected through various sources including specialists and hence it was assumed that the scores obtained by administering this test – measured knowledge of the respondents as intended.

Conclusion

Knowledge of improved small animal farming practices is essential for rural small scale entrepreneurship development. It is also crucial for assessment and formulation of need based planning for the socio economic development of rural small stakeholders. But there is no such standard process for testing the knowledge level of small animal farmers. With this background a knowledge test scale was developed to assess the knowledge level of the rural small animal owners. It was found that knowledge test constructed was highly stable and dependable for measurement of the knowledge level of the rural small animal owners.

REFERENCES

- Dhargupta, A. 2008. Study on health status of selected tribal communities in W.B. Ph.D. thesis, University of Calcutta, Kolkata, India.

- Jaiswal, N.K. 1965. A study of factors associated with low level of adoption of improved agricultural practices. Ph. D. thesis. IARI, New Delhi, India.
- Perry, N.C., Michel, W.B.1951. The estimation of a phi-coefficient for an entire criterion group from a phi-coefficient calculated from the use of extreme tails of a normal distribution of criterion scores. Educational psychology Measurement. 11. 629-639.
- Sagar, R.L. 1983. Study of agro-economic, socio-psychological and extension communication variables related with the farmers productivity of major field crops in Haringhata block. Ph.D. Thesis. Bidhan Chandra KrishiViswavidyalaya. W.B., India.
- Mehta, P. 1958. A study of communication of agricultural information and the extent of distortion occurring from district to village level workers in selected IADP district. Ph.D. Thesis. University of Udaipur, Rajasthan, India.
- Meena, M.L., Sharma, N.K., Dudi, A. 2007. Construction of knowledge test to measure knowledge of buffalo keepers. Indian Res. J. Ext. Edu.7(1). Jan. 2007.
- Goswami, A., Ghosh, R.K., Biswas, S. 2012. Development of cognitive learning scale to test the knowledge of poultry farmers. International Jr. of Bio- resource & Stress Mgmt. 3(3):358-361.
